

### **REMARKS/ARGUMENTS**

The Applicants originally submitted Claims 1-20 in the Application. In the present response, no Claims have been amended, canceled, or added. Accordingly, Claims 1-20 are currently pending in the Application.

#### **I. Rejection of Claims 1-3, 6-10, and 13-14 under 35 U.S.C. §103**

The Examiner has rejected Claims 1-3, 6-10, and 13-14 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0110086 by Reches (hereinafter "Reches") in view of U.S. Patent No. 5,412,648 to Fan (hereinafter "Fan"). The Applicants respectfully disagree since the cited portions of the cited combination of Reches and Fan, as applied by the Examiner, do not teach or suggest each of n outputs, each having a destination first-in, first-out buffer (FIFO) and n crossbar FIFOs, wherein each of the n crossbar FIFOs interposes a corresponding one of each of n inputs and the destination FIFO of the output as recited in pending independent Claims 1 and 8.

At item 7 on page 13 of the Office Action, the Examiner discusses the interview of December 9, 2009 where it was agreed that Reches only teaches that a FIFO interposes a destination FIFO and only one input and specific claim language was needed "such that it is clear that the claimed n crossbar FIFOs interpose a destination FIFO and every input." The Examiner further states that the claim language in the amendment of the RCE of December 11, 2009 does not include such a limitation and that the amendment "only requires that each crossbar FIFO be between a single input (one of the multiple inputs) and the destination FIFO."

Pending independent Claims 1 and 8 recite “wherein each of said n crossbar FIFOs interposes a corresponding one of each of said n inputs” (emphasis added). Since the pending claim language recites that each crossbar FIFO interposes (a corresponding one of) each of said n inputs, the pending claim language indeed recites that the n crossbar FIFOs interpose a destination FIFO and every input. A recitation of “wherein each of said n crossbar FIFO interposes every input and said destination FIFO”, as it appears the Examiner is suggesting, would not correctly describe the claimed invention, particularly in regard to the embodiment shown in Fig. 2 of the original specification. For example, with the above recitation of interposing every input, CB FIFO 210 of Fig. 2 would interpose DEST FIFO 216 and Input 1, DEST FIFO 216 and Input 2, and DEST FIFO 216 and Input 3. Fig. 2 clearly does not show this but, rather that each of the crossbar FIFOs interposes a corresponding one of each of the n inputs, *i.e.*, CB FIFO 210 interposes DEST FIFO 216 and Input 1, CB FIFO 212 interposes DEST FIFO 216 and Input 2, and CB FIFO 214 interposes DEST FIFO 216 and Input 3. Note that every input is connected to DEST FIFO 216, albeit through a differing CB FIFO. Reches does NOT teach this feature.

As such, the cited portions of the cited combination of Reches and Fan, as applied by the Examiner, do not provide a *prima facie* case of obviousness for pending independent Claims 1 and 8 and Claims that depend thereon. Accordingly, the Applicants respectfully request the Examiner to withdraw the §103(a) rejection of Claims 1-3, 6-10, and 13-14 and allow issuance thereof.

Further in item 7 at page 14-16 of the Office Action, the Examiner asserts that each of U.S. Patent Application Publication No. 2002/0085545 by Ku, *et al.* (hereinafter “Ku”), U.S. Patent No. 6,515,991 to McKeown (hereinafter “McKeown”), and U.S. Patent No. 5,724,352 to Cloonan, *et al.*

(herein after "Cloonan") disclose "a crossbar switch with the same configuration of crossbar FIFO as described in the Applicant's specification and as illustrated by Figure 2 of the Applicant's drawings."

The Applicants respectfully disagree since the cited portions of Ku, McKeown, or Cloonan do not teach all of the limitations of pending independent Claims 1, 8, and 15 for the reasons given below.

The Examiner recognizes, at the item 7 at the middle of page 14 of the Office Action that Ku does not "specifically disclose a destination FIFO for each of the output ports" but that "it is believed that the addition of a destination FIFO would be an obvious variation of the structure disclosed by Ku et al." Fig. 6 of Ku shows that the buffers 618 of Fig. 5, relied upon by the Examiner to teach n crossbar FIFOs, couple to queuing engines 616, which in turn are coupled to schedulers 620 and master scheduler 622. Paragraph [0077] of Ku teaches:

Each scheduler 620 may prioritize data packets by selecting the most eligible packet stored in its associated buffer 618. In addition, master scheduler 622...may be coupled to all of the schedulers 620 for prioritizing transmission from among the then-current highest priority packets from all of the schedulers 620. Accordingly, the switch 600 preferably utilizes a hierarchy of schedulers with the master scheduler 622 occupying the highest position in the hierarchy and the schedulers 620 occupying lower positions.

Thus, Ku teaches the schedulers 620 (and master scheduler 622) select which packets in buffers 618 are passed on to queuing engines 616. As such, Ku teaches away from using an additional destination FIFO for each output since it comprehends what's in each buffer to select a packet to present to a specific queuing engine 616. Furthermore, one of ordinary skill in the art at the time of the invention would not be motivated to add a destination FIFO to the buffers 618 Ku since doing so would change the principle of operation of Ku and add both complexity and cost to Ku. Adding a destination FIFO to the buffers 618 of Ku is NOT an obvious variation, as the Examiner asserts, of the structure disclosed by Ku. Thus, the cited portions of Ku do not teach each of the limitations of

pending independent Claims 1, 8, and 15.

At item 7 at the bottom of page 14 of the Office Action, the Examiner asserts that line 37 of column 3 to line 32 of column 4 and Fig. 1 of McKeown discloses a crossbar switch including queues that are equivalent to the claimed crossbar FIFOs. The Examiner asserts that McKeown teaches “whereby each output includes a queue, which is equivalent to the claimed destination FIFO.” The cited portions of McKeown, however do not teach that each output includes a queue. Instead, the cited portion of McKeown teaches “Each output 130 comprises a grant precedence pointer (GPP) 131, a request grantor 183, a scheduling mechanism 184, and a retriggering mechanism 185.” The only teaching of a queue in the cited portions of McKeown is the unicast 140 and multicast 150 queues of inputs 110. Thus, the cited portions of McKeown do not teach each of the limitations of pending independent Claims 1, 8, and 15.

At the item 7 at the bottom of page 14 and top of page 15 of the Office Action, the Examiner states:

Cloonan et al. discloses a crossbar switch including pipes, which are equivalent to the claimed  $n$  crossbar FIFOs (See column 7 line 50 to column 8 line 8 and Figure 4 of Cloonan et al.). In the arrangement of Cloonan et al., the switch includes  $n$  input ports and  $n$  output ports (with  $n$  being equal to 256 in the example of Figure 4) and a switch fabric 14 containing the pipes whereby each output port is connected to  $n$  corresponding pipes with each one of the  $n$  pipes being between the output port and a different input port.

It appears the Examiner is equating input interfaces 12<sub>0</sub>–12<sub>255</sub> as the claimed inputs, pipes 18<sub>0</sub>–18<sub>3</sub> as the claimed  $n$  crossbar FIFOs, and output packet modules 16<sub>0</sub>–16<sub>15</sub> as the claimed destination FIFOs. Assuming *arguendo* this to be true, the cited portions of Cloonan do NOT teach wherein each of the  $n$  crossbar FIFOs interposes a corresponding one of each of the  $n$  input and the destination FIFO. For example, Pipe0 of Fig. 4 interposes each and every input interface 12<sub>0</sub>–12<sub>255</sub>. Rather, the equated

crossbar FIFOs of Cloonan interpose every one of the inputs and the equated destination FIFO. Thus, the cited portions of Cloonan do not teach each of the limitations of pending independent Claims 1, 8, and 15.

## **II. Rejection of Claims 4-5 and 11-12 under 35 U.S.C. §103**

The Examiner has rejected Claims 4-5, and 11-12 under 35 U.S.C. §103(a) as being unpatentable over Reches in view of Fan and in further view of U.S. Patent No. 6,975,638 to Chen, *et al.* (hereinafter "Chen"). As established above, the cited portions of the cited combination of Reches and Fan, as applied by the Examiner, do not provide a *prima facie* case of obviousness for pending independent Claims 1 and 8. Chen has not been cited to cure the above-noted deficiencies of the cited combination of Reches and Fan but to teach a crossbar switch with inputs connected to Gigabit Ethernet networks and a SONET network. (*See* Office Action, page 6.) As such, the cited portions of the cited combination of Reches, Fan, and Chen, as applied by the Examiner, do not provide a *prima facie* case of obviousness for pending independent Claims 1 and 8 and Claims that depend thereon. Accordingly, the Applicants respectfully request the Examiner to withdraw the §103(a) rejection of Claims 4-5 and 11-12 and allow issuance thereof.

## **III. Rejection of Claims 15-17 and 20 under 35 U.S.C. §103**

The Examiner has rejected Claims 15-17, and 20 under 35 U.S.C. §103(a) as being unpatentable over Reches in view of Fan and in further view of U.S. Patent No. 5,905,873 to Hartmann, *et al.* (hereinafter "Hartmann"). As established above, the cited portions of the cited

combination of Reches and Fan, as applied by the Examiner, do not provide a *prima facie* case of obviousness for pending independent Claims 1 and 8. Analogously, the cited portions of the cited combination of Reches and Fan, as applied by the Examiner, do not provide a *prima facie* case of obviousness of pending independent Claim 15. Hartmann has not been cited to cure the above-noted deficiencies of the cited combination of Reches and Fan but to teach network processors coupled to corresponding physical interfaces that convert received packets between protocols. (See Office Action, page 10.) As such, the cited portions of the cited combination of Reches, Fan, and Hartmann, as applied by the Examiner, do not provide a *prima facie* case of obviousness for pending independent Claim 15 and Claims that depend thereon. Accordingly, the Applicants respectfully request the Examiner to withdraw the §103(a) rejection of Claims 15-17 and 20 and allow issuance thereof.

#### **IV. Rejection of Claims 18-19 under 35 U.S.C. §103**

The Examiner has rejected Claims 18-19 under 35 U.S.C. §103(a) as being unpatentable over Reches in view of Fan and Hartmann and in further view of Chen. As established above, the cited portions of the cited combination of Reches, Fan, and Hartmann do not provide a *prima facie* case of obviousness for pending independent Claim 15. Chen has not been cited to cure the above-noted deficiencies of the cited combination of Reches, Fan, and Hartmann but to teach to teach at least two of the *n* inputs are coupled to different types of packet based networks with the inputs and outputs being connected to a SONET network and two Ethernet networks. (See Office Action, page 12.) As such, the cited portions of the cited combination of Reches, Fan, Hartmann, and Chen, as applied by

the Examiner, do not provide a *prima facie* case of obviousness for pending independent Claim 15 and Claims that depend thereon. Accordingly, the Applicants respectfully request the Examiner to withdraw the §103(a) rejection of Claims 18-19 and allow issuance thereof.


**V. Conclusion**

In view of the foregoing remarks, the Applicants see all of the claims currently pending in this Application to be in condition for allowance and therefore earnestly solicit a Notice of Allowance for Claims 1-20.

The Applicants request the Examiner to telephone the undersigned agent of record at (972) 480-8800 if such would further or expedite the prosecution of the present Application. The Commissioner is hereby authorized to charge any fees, credits or overpayments to Deposit Account 08-2395.

Respectfully submitted,

**HITT GAINES, P.C.**

A handwritten signature in black ink, appearing to read "Steven J. Hanke". The signature is fluid and cursive, with the first name "Steven" and last name "Hanke" clearly distinguishable.

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